Jacob Englert M.S.

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Department of Biostatistics & Bioinformatics
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Education

Emory University ***2020 – Present***
Ph.D. in Biostatistics
Dissertation: Bayesian Tree-Based Methods for Environmental Health Research
Anticipated Graduation: 05/2025

Emory University ***2020 – 2023***
M.S. in Biostatistics
GPA: 3.91 / 4.00

Northern Kentucky University ***2015 – 2019***
B.S. in Mathematics and Statistics
GPA: 4.00 / 4.00, *Summa Cum Laude*

Research Experience

Emory University Atlanta, GA

Ph.D. Candidate (Dissertation) *Aug 2022 – Present*
Advisor: Dr. Howard Chang
Description: Extends the Bayesian additive regression trees (BART) framework to:
- Heterogeneous heat wave effect estimation for Alzheimer's disease patients within the case-crossover design,
- Smooth exposure-risk surface estimation for air pollution mixtures and asthma, and
- A spatially-varying quantile G-computation approach for estimating effects of air pollution mixtures on infant birth weight.

Methods: BART, Markov chain Monte Carlo (MCMC), conditional logistic regression, negative binomial regression, conditional autoregressive models, quantile G-computation

Research Assistant *Dec 2021 – Present*
Title: Sharing Patients' Illness Representations to Increase Trust (SPIRIT)
Advisors: Dr. Amita Manatunga and Dr. Mi-Kyung Song
Description: Analyzed data from a multi-site cluster randomized trial to assess the efficacy of an intervention to improve decision making confidence, post-bereavement outcomes, and treatment intensity for patients with end-stage renal disease and their surrogates.
Methods: Generalized linear mixed models, generalized estimating equations

Research Assistant *May 2021 – Dec 2021*
Advisor: Dr. Lance Waller
Description: Investigated the ability of sequentially layered spatial smoothing and spatial cluster detection techniques to identify hot spots for opioid overdoses in Georgia.
Methods: Inverse-distance smoothing, Besag-York-Mollié model, integrated nested Laplace approximation (INLA); clustering tests of Turnbull, Besag & Newell, and Kulldorff

Northern Kentucky University Highland Heights, KY

Undergraduate Research Assistant *Jan 2018 – May 2019*
Advisor: Dr. Andrew Long
Description: Collaborated with Togolese meteorologists to estimate long-term trends and seasonality in temperature time series data measured across 10 Togolese cities.
Methods: Singular spectrum analysis, linear mixed models

Undergraduate Research Assistant *Jan 2017 – May 2017*
Advisors: Dr. Dhanuja Kasturiratna, Dr. Lisa Holden, and Dr. Stuart Goldstein
Description: Collaborated with Cincinnati Children's Hospital to develop a model to predict the development of chronic kidney disease in children with acute kidney injury.
Methods: Logistic regression

Professional Experience

Lubrizol — Atlanta, GA (Remote)
Data Scientist Intern — *May 2024 – Aug 2024*

- Trained super learning ensembles to predict the hydrolytic stability of hydraulic fluids
- Contributed to the development of a novel transfer learning approach for simultaneous modeling of multiple test outcomes in high-dimensional settings using variational Bayesian methods
- Created an RShiny app to estimate and plot dose-response curves of in-vitro citotoxicity for health and beauty products

Medpace — Cincinnati, OH
Biostatistics Intern → Data Analyst — *Jan 2018 – Jul 2020*

- Designed interactive Spotfire dashboards used to monitor patient safety and compliance
- Conducted power simulations in R to study impacts of over-stratification in clinical trial designs
- Developed program templates for generating static and animated SAS graphics
- Programmed tables and figures to summarize safety and efficacy endpoints

Burkardt Consulting Center — Highland Heights, KY
Statistical Consultant — *Aug 2018 – May 2019*

- Advised academic and industrial clients on the formulation of research hypotheses, data collection, and statistical methodology

Federal Bureau of Investigation — Cincinnati, OH
Intern — *Jun 2017 – Dec 2017*

- Assisted cybercrimes squad with investigations by identifying statistical anomalies in case data

Publications

1. **Englert, J. R.**, S. T. Ebelt, and H. H. Chang (2025). "Estimating Heterogeneous Exposure Effects in the Case-Crossover Design using BART". *Journal of the American Statistical Association*. In press. doi: 10.1080/01621459.2025.2460231.
2. Song, M.-K., L. Plantinga, M. Metzger, N. Noorani, J. Lea, A. V. Kshirsagar, M. Jhamb, E. M. Abdel-Rahman, M. Laszlo, E. Wu, **J. Englert**, A. Manatunga, S. Benloukil, W. Timmons, L. Turberville-Trujillo, and S. E. Ward (2025). "Implementation of An Advance Care Planning Intervention in Dialysis Clinics". *American Journal of Kidney Diseases*. In press. doi: 10.1053/j.ajkd.2024.12.003.
3. Song, M.-K., A. Manatunga, L. Plantinga, M. Metzger, A. V. Kshirsagar, J. Lea, E. M. Abdel-Rahman, M. Jhamb, E. Wu, **J. Englert**, and S. E. Ward (2024). "Effectiveness of an Advance Care Planning Intervention in Adults Receiving Dialysis and Their Families: A Cluster Randomized Clinical Trial". *JAMA Network Open* 7(1), e2351511. doi: 10.1001/jamanetworkopen.2023.51511.

Submitted Manuscripts

1. **Englert, J. R.**, S. T. Ebelt, and H. H. Chang. "Modeling Joint Health Effects of Environmental Exposure Mixtures with Bayesian Additive Regression Trees". arXiv: 2411.09025.

Invited Presentations

Estimating Heterogeneous Heatwave Effects among People with Alzheimer's Disease using BART — *Oct 2023*
ENVISION Research Group
Atlanta, GA

Contributed Talks & Posters

Modeling joint health effects of temperature and air pollution mixtures using Bayesian regression tree ensembles — *Aug 2024*
36th Annual Conference of the International Society for Environmental Epidemiology
Santiago, Chile

CL-BART: Bayesian Semiparametric Estimation of Heterogeneous Effects in Matched Case-Control Studies with an Application to Alzhemier's Disease and Heat — *Mar 2024*
ENAR 2024 Spring Meeting
Baltimore, MD

The Effectiveness of SPIRIT in Preparing Patients on Dialysis and Their Surrogates for End-of-Life Decision Making: A Pragmatic Trial — *Nov 2022*
Kidney Week | American Society of Nephrology
Orlando, FL

Mapping the Opioid Epidemic in the Midwestern United States — *Mar 2019*
KYMAA Annual Meeting
Danville, KY

Climate Change in Togo, West Africa: 3° C Hotter (or so) by the End of the Century — *Mar 2019*
KYMAA Annual Meeting
Danville, KY

Analyzing Outcomes of Non-Deterministic Events in Fluctuating Temporal Data — *Feb 2019*
Posters At-The-Capitol
Frankfurt, KY

Modeling Climate Change in Togo, Africa — *Jan 2019*
Joint Mathematics Meetings
Baltimore, MD

Teaching Experience

Emory University — Atlanta, GA
Teaching Assistant

- QTM 100 - Introduction to Statistical Inference — *Spring 2024*
- EPI 590R - R Bootcamp for Epidemiology — *Fall 2023*
- BIOS 509 - Applied Linear Models — *Spring 2022, Spring 2023*
  Guest Lecture: Poisson and Negative Binomial Regression
- BIOS 525 - Longitudinal and Multi-Level Data Analysis — *Fall 2022*
  Guest Lecture: Bayesian Hierarchical Models
  Guest Lecture: Simulation Studies in R
- INFO 532 - Advanced Geographical Information Systems — *Fall 2021*
- INFO 530 - Introduction to Geographical Information Systems — *Spring 2021, Fall 2021*

Northern Kentucky University — Highland Heights, KY
Teaching Assistant

- STA 205 - Introduction to Statistical Methods — *Spring 2016 – Fall 2018*

Skills

Programming R, SAS, C++ (Rcpp), Python, SQL, Mathematica, LaTeX
Tools Git, High Performance Computing (HPC), Spotfire, Tableau, JMP, ArcMap, MS Office
Certifications SAS Certified Base Programmer for SAS 9

Awards & Honors

- Michael Lynn Award in Collaborative Biostatistics, Emory University — *2024*
- First Year Qualifying Exam Top Performer, Emory University — *2021*
- Laney Graduate School Fellowship, Emory University — *2020*
- Outstanding Senior in Statistics, Northern Kentucky University — *2019*
- Outstanding Senior in Mathematics, Northern Kentucky University — *2019*
- Honorable Mention, COMAP Mathematical Contest in Modeling — *2019*
- Outstanding Poster Presentation, Joint Mathematics Meetings — *2019*
- Honorable Mention, Public Health Data Challenge, American Statistical Association — *2018*
- International Study Scholarship, Northern Kentucky University — *2018*

	Outstanding Student Writing Award, Northern Kentucky University	*2016*
	President's List (x8), Northern Kentucky University	*2015 – 2019*
	Distinguished Scholarship, Northern Kentucky University	*2015*

Service

	HERCULES Exposome Research Center, Data Science Fellow	*2024*
	John O'Bryan Mathematics Competition, Scorekeeper	*2017 – 2018*
	Student Government Association at Northern Kentucky University, Justice	*2016 – 2017*

Membership

American Statistical Association

Eastern North American Region International Biometric Society

International Society of Environmental Epidemiology